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Usability Platter & Clip Usability Test Report

Testing conducted October 18-19, 2012

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Usability Platter & Clip Usability Test Report

Testing conducted October 18-19, 2012

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1 EXECUTIVE SUMMARY

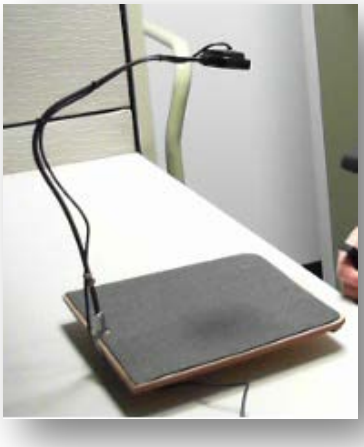
- The majority of our participants (75%) preferred to use the Usability Platter because of its perceived stability.
- The camera, particularly the long gooseneck, was viewed as fragile and intrusive on both devices.
- Participants found the resting angle of the Usability Clip helpful as they performed the tasks, but the handle on the base of the Usability Platter caused it to tilt awkwardly both in landscape and portrait orientation.
- The size of the Usability Platter was well suited for iPad tablets in both portrait and landscape mode.
- The Usability Clip was ineffective for portrait orientation, as it does not open wide enough to span many tablet devices tested.
- The Usability Clip was well suited for smaller handheld tablets such as the Nook or the Galaxy.
- The Usability Platter was viewed as very easy or easy to use by 88% of the participants, vs. a score of 51% for the Usability Clip.

2 DEVICE DESCRIPTIONS

HHS performed usability testing on two versions of a "usability sled" designed to capture the onscreen images of tablet computers while interfering as little as possible with the participant's normal use of their devices. Both devices used the same camera, a Logitech HD C525 webcam mounted with a gooseneck.

2.1 The Usability Platter

The Usability Platter is composed of a wooden tray that fits the dimensions of a standard iPad tablet. On the back there is a knob that is placed off center at the top edge, intended for users to grasp while holding their tablets.



2.2 The Usability Clip

This device also used a Logitech HD C525 webcam mounted on a gooseneck that screws in near the hinge of the clip and can curve around from the back of the tablet to the front. The clip opens to hold the tablet with two prongs on one side and the arm of the clip on the other.

3 TEST OBJECTIVES

The goal of testing was to gather user reactions to each device, assess the image capture of the camera and to establish best practices for tablet-based testing in the future.

3.1 Main objectives

- Observe participants interacting with each device during a series of tasks and note any issues or possible errors. Of particular interest were:
    - How participants used or handled the devices
    - Spontaneous utterances about the design or functionality of the devices
    - Handling/manipulation issues—inability to maintain a grasp of the devices or difficulty manipulating the devices or the tablet itself
    - Screen capture issues—failure to capture screen activity or impaired view due to interference from apparatus, camera or environment

3.2 Additional objectives

- To capture feedback from both participants and the test team to inform specific recommendations for improvements for the manufacturer
- To establish best practices for future tablet testing

4 PARTICIPANTS

Eight individuals participated in this test, each an Aquilent employee who volunteered to bring in his or her personal tablet computer for testing. Their devices and usage information are outlined below.

Tablet	Model	Count
iPad	iPad 1, iPad 2	5
Other tablets	Samsung Galaxy Tab II, Kindle Fire, Motorola Xoom	3
	Total	8

Experience	Usage	Count
3 years	Reading, Email/IM/Chat, Social Media, Music, Videos	1
2 years	Reading, Email/IM/Chat, Social Media, Music, Writing, Maps, Movies/TV, Shopping, Web Searches, Recipes, Online Banking, Games, Note-taking	3
1 year	Reading, Email/IM/Chat, Movies/TV, Web Searches, Games, Shopping	2
>1 year	Reading, Movies/TV, Web Searches, Games, Look for info on hobby or interest	2
	Total	8

5 METHODOLOGY

Lab-based usability testing was performed at the main HHS usability lab, located in Washington DC.

Audio and screen captures were collected via cameras installed on the Usability Platter and the Usability Clip and recorded using Morae software. An additional web camera was also used to capture the face and upper body of the participant. Tasks were delivered verbally by the test monitor.

In the observation room next door, Morae Observer allowed the test observer to monitor and take notes regarding actions and quotes during the session and record the sessions in Windows Media files.

5.1 Data Collected

Two forms of data were collected:

- *Qualitative*: Participant behavior and comments
- *Quantitative*: Completion rate metrics, task performance and end of test survey data

6 ANALYSIS

The researchers evaluated tasks based on scenario completion. Each scenario concluded when either the participant indicated the scenario's goal had been obtained (whether successfully or unsuccessfully) or the facilitator concluded the task.

After each test session, the facilitator reviewed the participant's task performance with the observer(s). Based on their discussion and agreement, they scored each task with one of the following:

- **Independent completion**
  - The participant was able to reach the desired goal/complete the task without either critical or non-critical errors.
- **Completed with Non-Critical Errors**
  - The participant completed the task after non-critical errors (an error that would not have an impact on the final output of the task but would result in the task being completed less efficiently).
- **Critical Error Committed**
  - The participant committed a critical error that resulted in the goal state becoming unobtainable [The participant was unable to reach the desired goal/complete the task] or
  - The participant obtained help from the facilitator in order to complete the task.

6.1 Subjective Evaluations

Questionnaires—at the end of the test—collected subjective evaluations regarding ease of use and satisfaction. The questionnaires utilized free-form responses and rating scales.

7 TASKS

The researchers constructed the test script with tasks based on the most common tablet interactions for users, as identified by major tablet functionality. Each participant completed the set of tasks twice, once with each device, alternating which device was tested first with each/

7.1 Task Outline

The researchers designed the tasks to prompt participants to maneuver the tablet in various ways in order to test the versatility of the testing devices.

Task Scenario 1: **Typing** using the "Notes" functionality

Task Scenario 2: **Swiping** using the "Photo Gallery" functionality

Task Scenario 3: **Change orientation** by viewing photos from the "Photo Gallery" functionality

Task Scenario 4: **Pick up/hold** by asking the participant to show the facilitator their screen

8 RESULTS

Each participant was asked for his or her first impressions and perceived pros & cons of the device being tested at the start of the session.

8.1 Impressions of Usability Platter

Participants were most concerned with the position of the camera and the possibility of it obstructing their view.

- "Camera is kind of in my face…It [Platter] won't sit straight."
- "The camera might be a little bit distracting."
- "From the user's point of view…it's a little bit awkward…it's not how I am used to using the tablet. The camera is in front of my view. "
- "You can clearly see what I'm doing. And the tilt is good…it gives me a more natural angle. If it was adjustable that would be good. Con, the camera."
- "Reminds me of a [lap desk]."

8.2 Impressions of Usability Clip

Participants mainly commented on the position and angle of the camera; they anticipated it would handle awkwardly.

- "I understand what it does. The image looks very small. If someone has a lot of stuff on their iPad, it might be difficult to see."
- "It's cool."
- "I guess the con is that the camera is tricky adjusting it…and it seems like we're locked into having it at this angle. And I would be nervous to pick it up and put it on my lap…that the camera would be funny. I thought it would be flat."
- "Seems heavier. I wouldn't want to hold this for a long time. The camera blocks the view a little."
- "It's clunky…it sits in an awkward position…this is an awkward position for typing."
- "…good angle to view things but not to do anything."

9 REQUEST-BASED TASK PERFORMANCE

In the request-based tasks, the researchers asked the participant to perform specific actions with the tablet. The table below provides an overview of participants' performance on individual request-based tasks.

9.1 Platter and Clip Comparison

Overall the Platter and Clip performed comparably to each other throughout the test with the exception of Task Scenario 3. When changing the orientation of the tablet, the Clip's camera often fell off to the side, resulting in multiple critical errors.

Platter

	Independent	Non-Critical Errors	Critical
Task Scenario 1: **Typing**	75%	25%	-
Task Scenario 2: **Swiping**	100%	-	-
Task Scenario 3: **Orientation**	62.5%	37.5%	-
Task Scenario 4: **Pick up/Hold**	62.5%	37.5%	-

Clip

	Independent	Non-Critical Errors	Critical
Task Scenario 1: **Typing**	75%	25%	-
Task Scenario 2: **Swiping**	100%	-	-
Task Scenario 3: **Orientation**	37.5%	25%	37.5%
Task Scenario 4: **Pick up/Hold**	62.5%	37.5%	-

9.2 Platter Orientation

Participants experienced more difficulty changing the Platter from a landscape position to portrait position and an easier time changing the Platter from a portrait position to a landscape position. This suggests that the participants were more comfortable having their tablets in a landscape orientation while using the Platter.

Platter – landscape

	Independent	Non-Critical Errors	Critical
Task Scenario 1: **Typing**	75%	25%	-
Task Scenario 2: **Swiping**	100%	-	-
Task Scenario 3: **Orientation**	50%	50%	-
Task Scenario 4: **Pick up/Hold**	50%	50%	-

Platter – portrait

	Independent	Non-Critical Errors	Critical
Task Scenario 1: **Typing**	75%	25%	-
Task Scenario 2: **Swiping**	100%	-	-
Task Scenario 3: **Orientation**	75%	25%	-
Task Scenario 4: **Pick up/Hold**	75%	25%	-

PLATTER- LANDSCAPE

PLATTER- PORTRAIT

9.3 Clip Orientation

Overall, participants using the Clip had fewer errors while performing tasks on their tablets in the portrait position. While typing, the location of the camera in portrait position was less conspicuous. It also seemed easier for participants to pick up and hold their tablets when the Clip was being used this way.

Clip-Landscape

	Independent	Non-Critical Errors	Critical
Task Scenario 1: **Typing**	**50%**	**50%**	**-**
Task Scenario 2: **Swiping**	**100%**	**-**	**-**
Task Scenario 3: **Orientation**	**25%**	**-**	**75%**
Task Scenario 4: **Pick up/Hold**	**50%**	**50%**	**-**

Clip-portrait

	Independent	Non-Critical Errors	Critical
Task Scenario 1: **Typing**	100%	-	-
Task Scenario 2: **Swiping**	100%	-	-
Task Scenario 3: **Orientation**	50%	50%	-
Task Scenario 4: **Pick up/Hold**	75%	50%	-

CLIP- LANDSCAPE

CLIP- PORTRAIT

10 RESULTS

10.1 Task Scenario 1: Typing

Using a tool or application on your tablet, please create a new note and type your favorite food, TV show and color.

Platter/Landscape

Independent completion	Completed with Non-Critical Errors	Critical Error Committed
75%	25%	-

Platter/Portrait

Independent completion	Completed with Non-Critical Errors	Critical Error Committed
75%	25%	-

Clip/Landscape

Independent completion	Completed with Non-Critical Errors	Critical Error Committed
50%	50%	-

Clip/Portrait

Independent completion	Completed with Non-Critical Errors	Critical Error Committed
100%	-	-

Observation:

The tilt of the Platter bothered one participant while attempting to type in landscape. The user went so far as to prop up the Platter with her iPhone to level it out.

Two participants had difficulty typing with their tablet in landscape using the Clip, commenting that the camera blocked their view of the screen.

	Recommendation	Frequency	Impact
1	Make the Platter level or make the tilt function adjustable	Moderate	Moderate
2	Extend the Clip's camera arm so that the camera can be positioned higher to alleviate impairing the user's view	Moderate	Moderate

10.2 Task Scenario 2: Swiping

Please go to your photos and swipe 5 times.

Platter/Landscape

Independent completion	Completed with Non-Critical Errors	Independent completion
100%	-	-

Platter/Portrait

Independent completion	Completed with Non-Critical Errors	Critical Error Committed
100%	-	-

Clip/Landscape

Independent completion	Completed with Non-Critical Errors	Independent completion
100%	-	-

Clip/Portrait

Independent completion	Completed with Non-Critical Errors	Critical Error Committed
100%	-	-

Observation:

All participants were able to easily swipe on their tablets regardless of the device or position of the tablet.

10.3 Task Scenario 3: Change orientation

Please change the view to portrait/landscape and back to portrait/landscape.

Platter/Landscape

Independent completion	Completed with Non-Critical Errors	Independent completion
50%	50%	-

Platter/Portrait

Independent completion	Completed with Non-Critical Errors	Critical Error Committed
75%	25%	-

Clip/Landscape

Independent completion	Completed with Non-Critical Errors	Independent completion
25%	-	75%

Clip/Portrait

Independent completion	Completed with Non-Critical Errors	Critical Error Committed
50%	50%	-

Observation:

Participants using the Platter had an easier time changing orientation because of the stability of the camera. Two participants picked up their tablets turned them portrait and then proceeded to place them perpendicularly on to the Platter. This did not disrupt the task, however it did at times, omit the bottom of the screen from the camera's view (see image below).

When the user places the tablet perpendicular on the Usability Platter, the view of the screen is cut off.

The instability of the Clip's camera (i.e. wavering and not staying in place with normal movement from the participant) resulted in obstructed views and reassembly of the device.

	Recommendation	Frequency	Impact
3	Extend the dimensions of the Platter to accommodate both landscape and portrait tablet positions	High	Moderate
4	Improve the stability of the Clip's camera position and include some locking mechanism to secure it in place	High	High

10.4 Task Scenario 4: Pick up/hold

Please show me your screen. Please change the view to portrait/landscape.

Platter/Landscape

Independent completion	Completed with Non-Critical Errors	Independent completion
50%	50%	-

Platter/Portrait

Independent completion	Completed with Non-Critical Errors	Critical Error Committed
75%	25%	-

Clip/Landscape

Independent completion	Completed with Non-Critical Errors	Independent completion
50%	50%	-

Clip/Portrait

Independent completion	Completed with Non-Critical Errors	Critical Error Committed
75%	25%	-

Observation:

Overall the participants were hesitant to pick up either testing device for fear of damaging the camera.

The participants were more inclined to remove their tablet from the Platter than pick up the Platter and tablet together, thus removing the tablet from the view of the camera.

The Clip was easier to lift but more difficult to move around because of the unsteadiness of the camera.

	Recommendation	Frequency	Impact
5	Incorporate a fastening mechanism to the Platter to allow for testing to eliminate the affordance of picking up the tablet independently of the Platter	High	High

11 WRAP UP QUESTIONS

How does the position of the camera compare between the Usability Platter and the Usability Clip?

- "The position of the camera on the Platter is more comfortable because it lies flat at a more better angle for typing. However, the camera position is awkward when trying to pick it up."
- "The usability Clip allowed me to get closer to how I typically use the tablet." [holding it with one hand and working with the other hand]
- "About the same."
- "I think the camera allows for easier positioning of the camera than the Clip as it has a broader base and a more fixed camera piece. Positioning the camera with the Clip seemed a bit difficult in terms of keeping it in place above the screen."
- "The camera seems less intrusive with the Platter vs the Clip. The Clip was wobbly and moved when I moved my tablet."
- "No major difference."
- "The camera is more 'in your face' on the Clip. It's still in your face on the Platter...but a little easier to ignore."
- "I thought it was more stable on the Platter."

1. **How confident were you that your tablet was safe using the <u>Usability Platter</u>?**

Very confident	**50.0%**
Confident	25.0%
Neutral	12.5%
Not very confident	12.5%
Not confident at all	0.0%

Please tell us why or why not.

- "It was easy to maneuver and felt more secure. The clasp felt awkward and uncertain when trying to attach it."
- "At first I was a little apprehensive because the Platter tipped when I placed my iPad on it, seemed a bit too heavy for it. But I didn't worry that it was necessarily unsafe."

- "The rubber pad seemed to keep the tablet in place and it took a little force to make it move. Worked well with or without my case."

- "The angle was narrow and the surface of the Platter seemed to have enough friction to hold it."

- "It felt secure on the Platter itself, but the Platter was a little awkward to hold, so it felt insecure in my hands."

2. Overall, how easy or difficult was the Usability Platter to use?

Very easy	**50.0%**
Easy	37.5%
Neither easy nor difficult	12.5%
Difficult	0.0%
Not confident at all	0.0%

3. How confident were you that your tablet was safe using the Usability Clip?

Very confident	25.0%
Confident	**50.0%**
Neutral	0.0%
Not very confident	25.0%
Not confident at all	0.0%

Please tell us why or why not.

- "I felt that if the Clip were moved in a certain direction or jarred in any way that my tablet would fall out."

- "Because the Clip has "clips" to fit the tablet into place, it had a more snug fit, which I thought made it more stable and safer than the Platter (no tipping over from weight)."

- "I wasn't really worried about the Clip portion, I was concerned the camera was going to flop over and hit my tablet when I was moving the tablet around. It also did not work with my case, which was disappointing."

- "Probably because of the spring that held the tablet. Also, because I couldn't see the mechanism (it was hidden from the view)."

- "because I didn't move it...it's rather stuck in one place it seems."

4. **Overall, how easy or difficult was the Usability Clip to use?**

Very easy	12.5%
Easy	**37.5%**
Neither easy nor difficult	25.0%
Difficult	25.0%
Not confident at all	0.0%

5. **Which device do you feel we should use in the lab, the Platter or the Clip, and why?**

Usability Platter	**75.0%**
Usability Clip	25.0%

- "The Platter seems easier to use and less likely to damage the tablet. Also, it makes for a more comfortable position for doing different tasks on the tablet."
- "The tablet doesn't shift around as easily."
- "Although I liked the design of the Clip better (it's light-weight, holds the tablet in place more as it's clipped in, also less bulky when picking it up or moving it compared to the Platter.), I think the Platter would be better for the lab because the camera on the Platter stayed in place much better than the one of the Clip. Ultimately, the goal of these devices is to record what users are doing on the device, and I think the camera positioning is key in getting those results. I think the Platter wins in that regard over the Clip."
- "The Platter was more stable and it will work better with a variety of tablets. With the new iPad mini being released, as well as smaller the smaller kindle tablets, it seems more universal."
- "It's [the Platter] a simple device that works, despite missing some features like customizable tilt."
- "the Clip's camera moved and is difficult to position. and it completely in your place."
- "Easier to switch between portrait/landscape and it maintains the position when it sits on the Platter."

6. **What recommendations or suggestions, about either of these cameras, do you think we should pass along to the maker of these devices?**

- "Both of the cameras seemed fine. However, I had to move my head around to make sure that it didn't hit me in the face."

- “I would suggest a verticle Clip to hold the tablet, because the framing (the hinges that hold the Clips together) got in the way of my hand holding the tablet across the width of the tablet. When I tried with it the Clip holding it vertically - it helped. I realize that the current Clip will not fit standard tablets though.”

- “Provide a method to fasten the tablet to the Platter. Just rubber bands might be sufficient.”

- “For the Clip, possibly fix the positioning of the camera to be more stable or something. It didn't want to stay in place above the screen of the device. It could be a problem if you have to constantly readjust the camera during a test.”

- “The Clip-on needs to be sturdier and accommodate different sizes of tablet. It isn't very forward thinking in that it wouldn't accommodate a different sized device.”

- “On the Platter...get rid of the large bump in the back...use just four corner pads so it will lie flat but slightly elevated for easy pickup. For both, the screw to the camera needs to be longer and of a type that's ‘toolable’...meaning that we can use an allen, phillips, or flat screw driver to tighten...finger tight isn't cutting it.”

12 RECOMMENDATIONS

12.1 Scoring

Frequency:

Frequency is the percentage of participants who experience the problem when working on a task.

- High: 33% or more of the participants experience the problem
  - [3 or more participants]
- Moderate: 22% of participants experience the problem
  - [2 participants]
- Low: 11% of the participants experience the problem
  - [1 participant]

Impact:

Impact is the ranking of the consequences of the problem by defining the level of impact that the problem has on successful task completion. There are three levels of impact:

- High - prevents the user from completing the task (critical error)
- Moderate - causes user difficulty but the task can be completed (non-critical error)
- Low - minor problems that do not significantly affect the task completion (non-critical error)

12.2 Recommendation Chart

The researchers recommend the following to address the areas that were problematic to the test participants:

	Recommendation	Frequency	Impact
1	Make the Platter level or make the tilt function adjustable	Moderate	Moderate
2	Extend the Clip's camera arm so that the camera can be positioned higher to alleviate impairing the user's view	Moderate	Moderate
3	Extend the dimensions of the Platter to accommodate both landscape and portrait tablet positions	High	Moderate
4	Improve the stability of the Clip's camera position and include some locking mechanism to secure it in place	High	High
5	Incorporate a fastening mechanism to allow for testing to eliminate the affordance of picking up the tablet independently of the Platter	High	High

12.3 Best Practices

There is no one-size-fits-all solution for tablet testing. Certain tablet devices, and tasks, will lend themselves to specific camera and platform combination.

1. If your tasks require an Internet connection, consider the availability of WiFi or carrier access prior to recruiting participants.
2. Consider the specific devices you wish to include in testing and include that information in your screener.
3. Be aware of which devices are coming in before each session so you can select the appropriate camera and platform combination for your testing.
4. Give the participant and yourself a couple of minutes to get comfortable with the camera and platform combination and make any necessary adjustments.
5. If possible have alternative setups to try.

Rules of Thumb:

For iPads and Similar Sized Tablets

The Usability Platter works well for most tasks in landscape, whether the device is cased or uncased.

Note:

- It may be advantageous to remove the black knob from the bottom of the Platter to provide a completely flat surface on which to position the tablet.
- The flat surface will make it easier for participants to undertake tasks that require switching the orientation of the tablet.

For Mid-Sized or Small Tablets

The Usability Clip works well for most handheld tasks such as reading, watching videos and shopping which focus on viewing information.

The lightweight clip allowed users to easily pick up their devices and hold them naturally for activities such as reading and swiping. The Clip also provided an upright angle that is similar to a stand that many tablet owners utilize to watch movies, TV or reference while performing some other activity.

Note the Usability Clip has prominent size limitations and assembly challenges.

- The Clip does not accommodate larger tablets or tablets that are used in thick cases well due to the small lip size on the Clip.
- It also does not open wide enough to clasp a tablet the size of an iPad in portrait orientation.
- The instability of the camera at this point is also not conducive to tests that have the potential to switch orientation.
- The assembly of the Clip is rather difficult. It is not advisable to use the Clip in tests that have strict time restriction and require assembly multiple times.
- Because of the tightness of the spring, screwing in the camera requires two people; one person to hold the Clip open, and another person to screw in the camera.